ANTECHINUS ROSAMONDAE, A NEW SPECIES OF DASYURID MARSUPIAL FROM THE PILBARA DISTRICT OF WESTERN AUSTRALIA; WITH REMARKS ON THE CLASSIFICATION OF *ANTECHINUS*.

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Diagnosis: *Antechinus rosamondae** is a short-faced *Antechinus* differing from all other *Antechinus* in that (a) the paroccipital region of the exoccipitals is greatly inflated contributing to a large portion of the "mastoid" bulla and (b) it only possesses two pairs of premolars both above and below as the normal condition.

Description: (a) Skull: Broad, with rostral portion and palate short as compared with total length (see Table 1 and Fig. 1). Skull high in profile not long and flattened as in *A. macdonnellensis*. Tooth-row conspicuously arched downwards behind canines. Nasals broadly expanded at their point of contact with suture between frontal and maxilla; their breadth being approximately equal to, or greater than, the distance between the tips of the upper canines. Postorbital processes clearly defined and constriction clearly marked behind them. Alisphenoid bulla greatly inflated, globular. "Mastoid" bulla also greatly swollen, the posterior part of it being exoccipital. When viewed from the dorsal surface the exoccipital bulla is clearly visible posterior to the nuchal crest. The anterior palatal foramina are short. There is one pair of posterior palatal foramina.

(b) Teeth: I^1 elongate, set apart from I^2, ^{3}, ^{4} which are small, I^2 being slightly the largest. Canines long. Premolars two only, the rear tooth slightly the larger. Molars, four, high cusped. In the mandible, premolars two only; there being no diastemata between incisors, canine and premolars.

Dental formula. $\frac{4}{3}\ \frac{1}{1}\ \frac{2}{2}\ \frac{4}{4}$

(c) External characters: General form robust with short conical snout (Fig. 2 of M5508). Forepaws strong, backs of them well haired with an admixture of greyish and russet hairs. Ears short and well haired; supratragus large. In alcohol the pinna does not appear membranous. Hind feet, like forefeet, well haired on dorsal surface. In seven of the eleven specimens the first interdigital pad is confluent with the thenar pad (Fig. 3 of M5508 shows the condition in which these two are separate). Tail russet above, pale below, often slightly swollen; well haired, hispid, but without brush or dark crest (body measurements taken from specimens preserved in alcohol given in Table 2). General colour a russet-brown or even a coppery colour. Guard hairs in mid-back Russet (Ridgway colours capitalized), hairs being Slate Grey or Dark Neutral Grey at their

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* A triple allusion to red hair, spinifex, and Woodstock. Fair Rosamond was by tradition, red-haired and very beautiful. Mistress of Henry II, she was kept hidden in "a house of wonderful working, so that no man or woman might come to her . . ." This maze was at the Royal Manor of Woodstock in Oxfordshire.

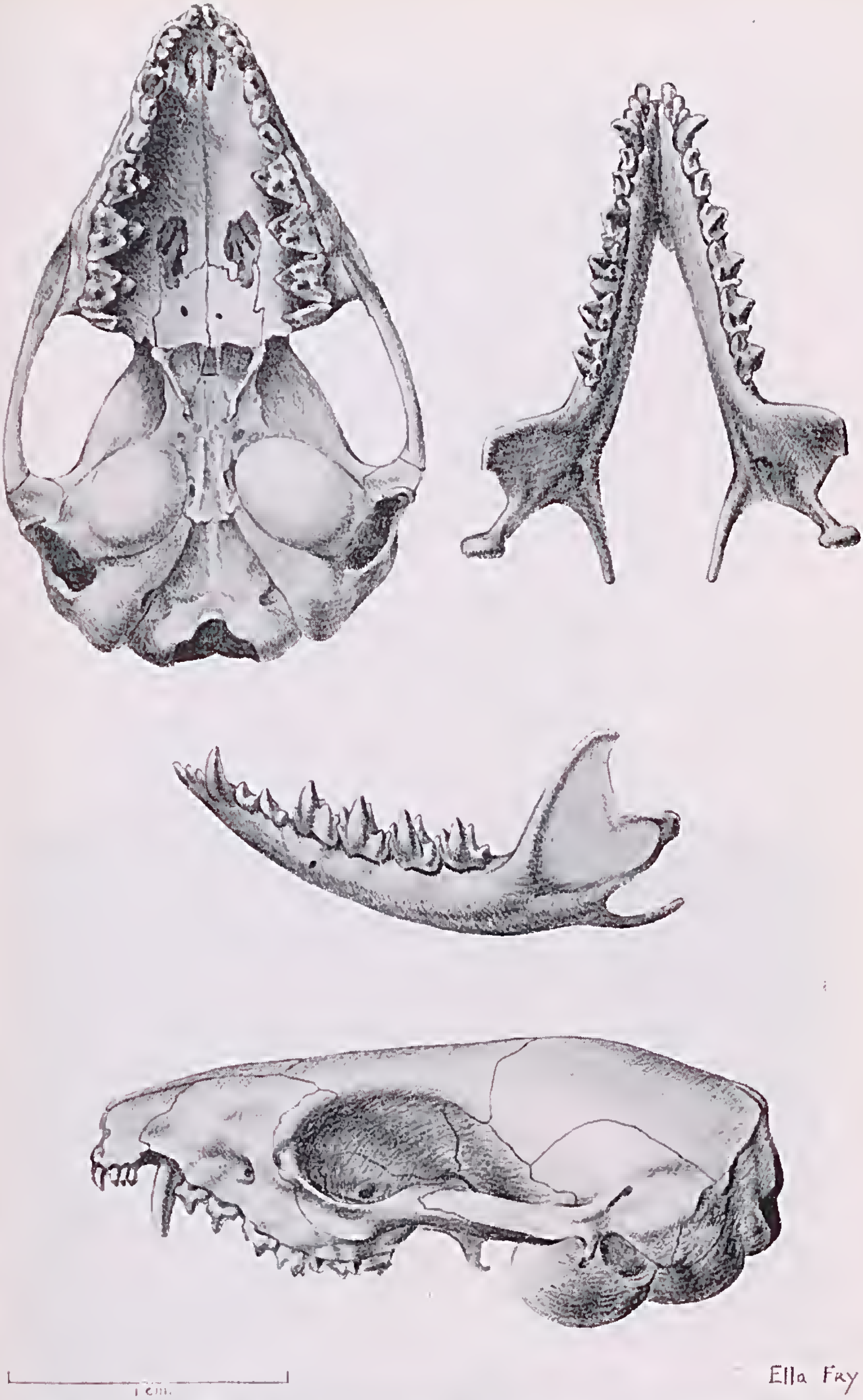

Fig. 1.—The skull of *A. rosamondae*. Plate from forthcoming work on Western Australian Mammals by W. D. L. Ride and Ella Fry. Based upon M3421 with pterygoids from M3416.

bases (for about one-third to half of their length). Under-fur mostly grey with pale russet almost Cinnamon tips. Ventral surface whitish but, here too, hairs are grey based (approximately Hair Brown). No orange patches behind the ears. General texture of the fur of the back is hispid due to the presence of innumerable guard hairs.

(d) Sexual characters: Scrotum pendulous. Series indicates enlargement in June, July (M5507, M5508, M5512).

Pouch a depressed saucer-like area filled with long white hair. Periphery of the pouch covered with long white hair especially at its anterior edge where this is more than 20 mm. in length. Teats eight. Of two females, one taken in November (M6055) has a clearly marked pouch but no elongated teats, while a specimen taken in December (M2186) had elongated teats.

Holotype: Western Australian Museum No. M5514. Male in alcohol. Collected E. H. M. Ealey, 4 April 1958, wt. 20 g., no field number, loc. 22 [i.e. Airfield, approx. 3 m. W. of Pulleunah Hill].

Type locality: Woodstock Stn., via Marble Bar, Western Australia. Lat. 21° 35′ S., Long. 119° E. (Military Grid 017230).

Paratypes: Woodstock Stn. Males in alcohol: M6054, coll. April 1957, loc. 18, i.e. Ram Paddock, leg. E. H. M. Ealey. M5512, coll. June 1956, loc. 18. leg. E. H. M. Ealey. M5507, coll. October 1957, taken by cat, leg. E. H. M. Ealey. M5513, coll. 3 April 1957, taken by cat, leg. E. H. M. Ealey. M3421, coll. October 1957, taken by cat, leg. E. H. M. Ealey.

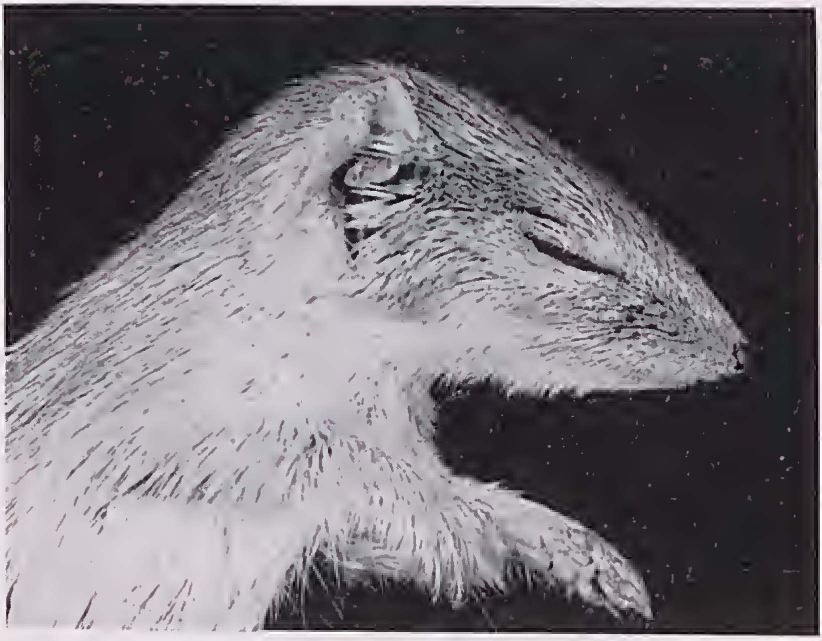

Fig. 2.—*A. rosamondae*. Head of alcohol specimen, W.A.M. M5508, ♂

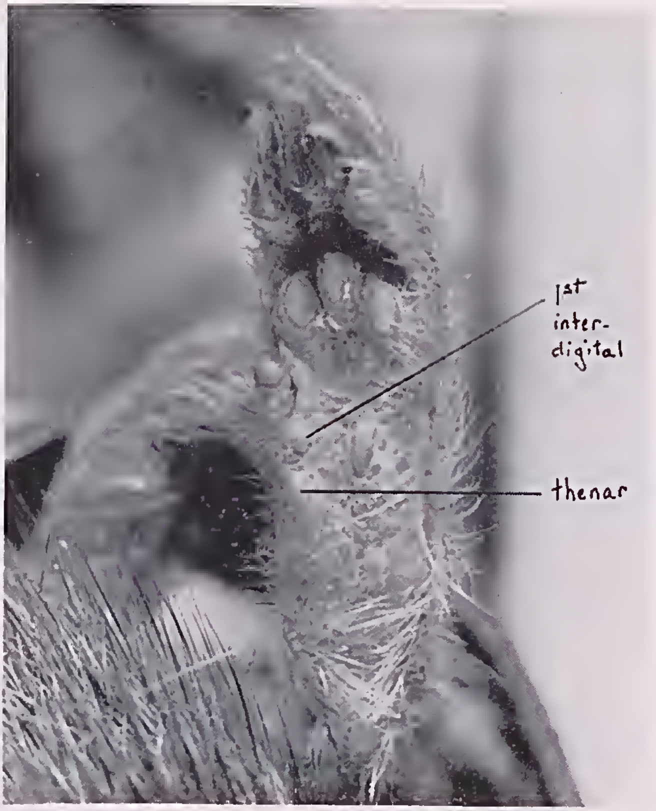

Fig. 3.—*A. rosamondae.* Hindfoot of alcohol specimen, W.A.M. M5508, ♂. Illustrating the condition in which 1st interdigital and thenar pads are separate.

White Springs Stn. (Lat. 21° 50′ S., Long. 118° 50′ E.). Male in alcohol, M5508, coll. July 1954, leg. E. H. M. Ealey.

Abydos Stn. (Lat. 21° 25′ S., Long. 118° 55′ E.). Female in alcohol, M6055, coll. 8 November 1956, leg. E. H. M. Ealey. Males, skins and skulls: M3416, coll. 6 August 1956, leg. E. H. M. Ealey. M2937, coll. 6 June 1953, leg. E. H. M. Ealey.

Nr. Tambourah (Lat. 21° 45′ S., Long., 119° 10′ E.). Female skin and skull, M2186, coll. 24 December 1936, leg. R. M. W. Bligh.

All specimens in the collections of the Western Australian Museum.

Field Notes: Supposed to live among spinifex *(Triodia)* in creek beds.

History: The first specimen of *A. rosamondae* was collected near Tambourah by Mr. R. M. W. Bligh in 1936 and was tentatively assigned to *Dasycercus** on its dental formula by the late Mr. L. Glauert (ms. only). However, its foot pads, general body size, absence of a crest of black hairs on the tail, all clearly indicate that it does not belong there and it is undoubtedly an undescribed species of *Antechinus*. Subsequently, the large series collected by Dr. Ealey during his years on Woodstock gave some indication of the variation within the species and it is here described as new.

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* This has nothing whatever to do with **Dasycercus blythi** Waite, 1904, which was collected by Mr. A. C. Bligh in the Pilbara.

COMMENT ON *ANTECHINUS*, *PARANTECHINUS* AND *PSEUDANTECHINUS*:

For a better understanding of the taxonomy of the Dasyuridae, *Antechinus rosamondae* is one of the most significant discoveries of recent years because its characters cast considerable doubt upon the wisdom of the generic classification erected by Tate in his 1947 monograph of the group. In that work he pointed out that *Antechinus apicalis* (Gray) differed from other *Antechinus*, except *A. macdonnellensis* (Spencer), in the extreme reduction of the posterior premolars which are single-rooted vestiges. He erected a monotypic genus, *Parantechinus*, for it. Tate also said that *A. macdonnellensis* differed from other *Antechinus* as well in the reduction of its upper posterior premolar, "the total absence of the corresponding lower tooth," and in the inflated nature of both alisphenoid and mastoid bullas. He said that, in *Antechinus*, the bullas were relatively uninflated. He erected *Pseudantechinus* for it (and for its close relative *A. mimulus* (Thomas) which I consider to be a synonym of *A. macdonnellensis*).

From the description it can be seen that we have, in *A. rosamondae*, a small *Antechinus*-like dasyurid which has no posterior premolars either above or below and which has even more greatly inflated bullas than *A. macdonnellensis*. Yet its footpads, general body and dental form, lack of brushed, or greatly-crested, tail, and inflated alisphenoid bulla all indicate close affinity with *Antechinus*. One is thus faced with the alternative of erecting yet another monotypic genus to receive it or of returning to a wider concept of *Antechinus* and placing all these species in it.

That a return to the wider concept of *Antechinus* is the more reasonable of the choices, is clearly indicated by more information on the characters of *A. macdonnellensis* than Tate had. His information was based upon two specimens only, i.e. a specimen from the Horn Expedition, now in the American Museum of Natural History, and the holotype of *A. mimulus* (Tate 1947: 139, 154). An excellent series of *A. macdonnellensis* in the Australian and Western Australian Museums illustrates variation in premolar reduction very clearly. Five specimens have three premolars above and below with the last upper premolar scarcely reduced (e.g. W.A.M. M2554), in seven it is reduced above and absent below (e.g. A.M. M4438), and in three it is absent above and below (e.g. A.M. M8194) as is the case in *A. rosamondae*. Spencer (1896: 29) had long ago pointed out that his series was variable in dentition but Tate does not appear to have been aware of this. Thus *A. macdonnellensis* in its variation spans the dental characters of *Antechinus* from *A. flavipes* to *A. rosamondae* through *A. apicalis*.

Since Tate has also drawn attention to the bulla in these ani-

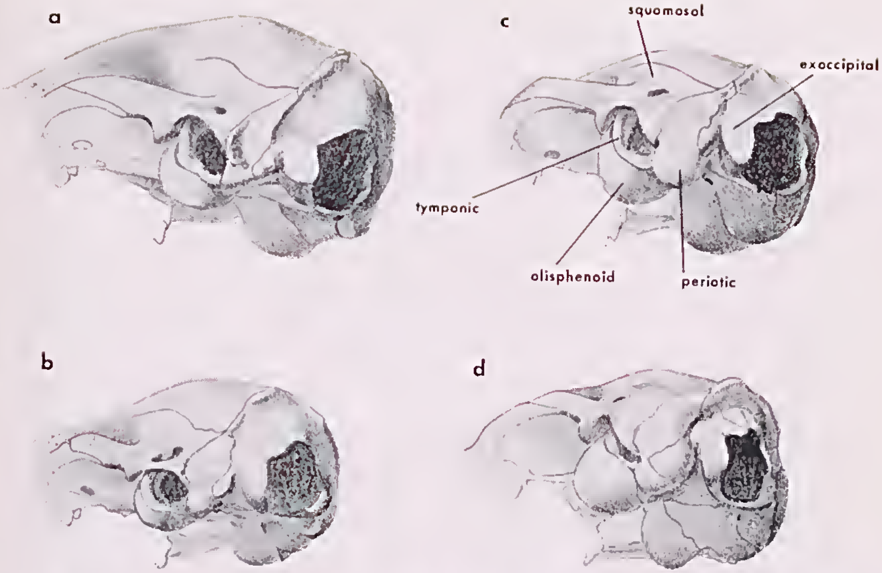

Fig. 4.—Bullar regions of (a) *A. apicalis,* C302, (b) *A. flavipes,* M5562; (c) *A. macdonellensis,* M2554, (d) *A. rosamondae,* M3421. Plate from forthcoming work on Western Australian Mammals by W. D. L. Ride and Ella Fry.

mals and has used it to divide *Antechinus,* it is important to notice that inflation and its absence does not split *Antechinus* into two distinct divisions. In all *Antechinus* the alisphenoid bulla is inflated and the "mastoid" bulla exhibits a complete range of inflation from the scarcely inflated condition of *A. apicalis,* through the increasingly inflated conditions of *A. flavipes* and *A. bilarni* (photographs by courtesy of Dr. Johnson), to *A. macdonnellensis* where the exoccipital plays a small part in forming the postero-mesial wall of the bulla, to *A. rosamondae* where the exoccipital forms the whole of the posterior part of the "mastoid" bulla (see Fig. 4).

ACKNOWLEDGEMENTS

I wish to express my very great indebtedness to Dr. E. H. M. Ealey, who as the collector of all but one of the specimens described here, gave them to me for description. Mr. John McNally of the National Museum of Victoria lent me one of the Horn Expedition specimens of *A. macdonnellensis* and also a specimen of *A. apicalis.* Dr. David H. Johnson of the U.S. National Museum also provided me with photographs of his recently described *A. bilarni.*

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SPENCER, Baldwin. 1896. Mammalia. In *Report on the work of the Horn Scientific Expedition to Central Australia.* Part II. Zoology. Ed. Baldwin Spencer. London: Dulau and Co., Melbourne: Melville, Mullen and Slade.

TATE, G. H. H. 1947. On the anatomy and classification of the Dasyuridae. *Bull. Amer. Mus. Nat. Hist.,* 88: 97-156.

TABLE 1.—SKULL AND DENTAL MEASUREMENTS OF A. ROSAMONDAE (A. MACDONNELLENSIS FOR COMPARISON)

(Measurements in mm.)

	Antechinus rosamondae					A. macdonnellensis			
No.	M5507	M3421	M2937	M3416	M2186	Nat. Mus., Melb. C813	M716	M2554	M3444
Sex	♂	♂	♂	♂	♀	♀	♂	♀	♂
Locality	Woodstock	Woodstock	Abydos	Abydos	Tambourah	James Ra. Centr'l Aust. Horn Exp.	Nullagine W.A.	Nullagine W.A.	Barrow I. W.A.
Basal length	23.8	23.2	23.2	25.3	23.0	25.6	27.5	26.8	26.0
Palatal length (incl. spine)	12.8	12.8	12.7	13.4	—	14.8	16.0	15.8	14.9
Breadth across antero-lateral points of M^3—M^3	8.3	8.4	7.9	9.0	8.3	8.4	9.3	8.8	9.0
Ant. pal. foramina	1.9	2.1	1.7	2.0	—	—	3.3	2.6	—
I^2 — I^4 (incl.)	1.3	1.3	1.3	1.4	1.4	1.5	1.7	1.6	1.6
I^2 — M^1 (incl.)	7.1	7.2	6.9	7.4	6.9	7.8	9.0	8.6	8.2
M^{1-4} (incl.)	5.9	6.3	6.1	6.2	6.1	6.6	7.0	6.8	6.3
M^{1-3} (incl.)	5.2	5.5	5.3	5.7	5.5	5.6	6.0	6.0	5.6
Alisphenoid bulla greatest antero-posterior diameter	5.3	5.3	5.2	5.7	5.1	4.4	5.9	5.2	4.8
Bullar length (from Alisphenoid- Exoccipital)	8.3	8.0	8.2	8.9	—	7.2	9.1	8.1	7.5
Zygomatic breadth	16.0	15.4	15.3	17.3	15.2	16.3	17.3	16.5	16.9
Constriction	5.5	5.7	5.3	5.8	5.6	5.3	6.0	6.2	5.6
Nasals, greatest length	7.9	8.3	8.6	7.6	8.2	9.9	11.4	9.9	10.4
Nasals, greatest breadth	4.0	3.7	4.4	4.1	3.9	2.7	4.2	3.0	3.7

TABLE 2.—BODY MEASUREMENTS OF ANTECHINUS ROSAMONDAE.

Alcohol specimens: Measurements taken from fixed specimens, lengths in mm.

No.	M5513	M5512	M6055	Holotype M5514	M5508	M6054	M5507
Sex	♂	♂	♀	♂	♂	♂	♂
Locality	Woodstock	Woodstock	Abydos	Woodstock	White Springs	Woodstock	Woodstock
Total length*	—	154	152	—	—	—	—
Tail-vent	53.5	62.8	59.0	56.3	70.0	54.1	61.4
Hindfoot	16.4	18.0	17.0	16.6	18.1	15.1	18.1
Ear	11.1	11.6	11.3	11.4	12.3	10.9	—
Scrotum or Pouch	Small	Large	Well defined	Small	Large	Small	Large

Skins: Measurements taken from collectors' or preparators' labels, lengths in mm.

No.	M3416	M2937	M2186
Sex	♂	♂	♀
Locality	Abydos	Abydos	Tambourah
Head and Body	103	95	85
Tail	62	56	50
Hindfoot	18	16	15
Ear	13	11	11
Scrotum or Pouch	—	Large	Well defined teats elongate

* Not taken when specimen fixed in inflexible curve.